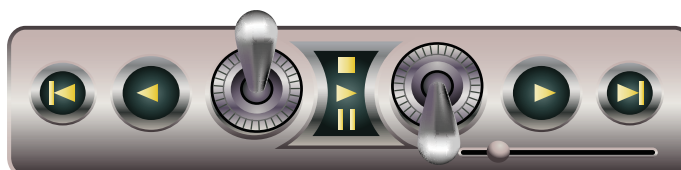


Flight Surgeon Refresher Course

Section 4: Aviation Safety

Aviation Safety (FSRC401)



AVIATION SAFETY

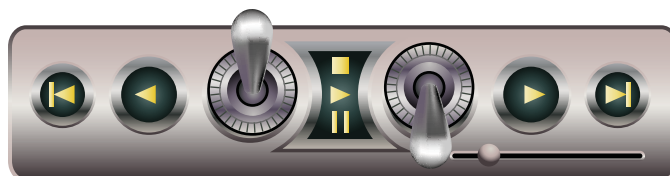
Introduction

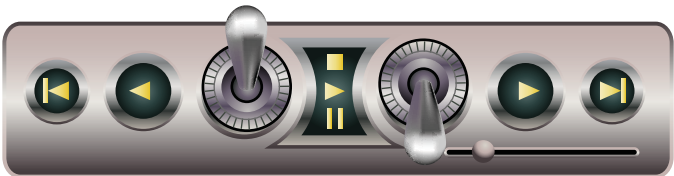
Fiscal year 1999 produced Army Aviation's worst safety performance since Desert Shield/Desert Storm. With eighteen Class A aviation flight accidents and twenty fatalities, the upward trend in accidents that began in fiscal year 1998 continued. Analysis of fiscal year 1999 aviation accidents revealed that the proximate cause of most of the accidents didn't happen at the time of impact or during the crash sequence, they occurred with a breakdown in leadership, standards, or discipline. Since that time we have seen ups and downs in the accident rates. With the increased optempo seen in the Global War on Terrorism, aviation mishaps are at an all-time high!

Leadership involvement at all levels, combined with effective risk management, discipline and strict adherence to standards are the primary tools that can save lives and prevent the tide of overwhelming accidents from continuing to erode valuable combat power. As members of the aviation community, it is up to all of us to accept responsibility for improving our aviation safety performance.

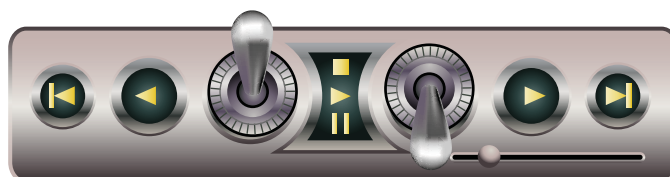
Objectives:

- a. List the Department of the Army level organizations and responsibilities for Aviation Safety,
- b. Match key personnel with their responsibilities in the unit Aviation Safety Program
- c. Describe the key Aviation Safety Programs
- d. Describe the different types of Safety of Flight (SOF) message
- e. Describe the criteria for the different accident classifications.
- f. Identify safety hazard markings on the flight line
- g. Describe safe personal conduct around aircraft on the ground and in flight





What are the Department of the Army-level organizations with responsibilities for aviation safety?	
The Assistant Secretary of the Army (Installation and Environment)	The principal advisor to the Secretary of the Army for the aviation safety component of protecting the force.
The Chief of Staff for the Army	The approval authority for the army-wide grounding of mission, type, design, and series of army aircraft. All Safety of Flight and Aviation Safety Action Messages are approved for release through this office
The Deputy Chief of Staff for Logistics (DCSLOG)	Approves of Safety of Flight and Aviation Safety Action Messages. Serves as chairperson for the army safety action team. Approves policy on aircraft weight and balance, aviation life support equipment, and the requirements and use of non-standard aircraft.
The Deputy Chief of Staff for Operations (DCSOPS)	Authorizes selected waivers, as referenced in AR 95-1, paragraph 1-7. Reports Army flying hour program execution during the quarterly program performance and budget execution review.
The Director of Army Safety (DASF) (Commander, US Army Combat Readiness Center)	Manages the Army Aviation Accident Prevention Program, and has the overall responsibility for army aviation safety functions in: <ul style="list-style-type: none"> • Commands the Combat Readiness Center at Ft. Rucker, Alabama; • Collects information from aviation accident investigations conducted by the United States Army Combat Readiness Center (USACRC) and Army units • Conducts research, analysis, and studies of aviation accident information • Develops aviation risk control measures for commanders to enhance aviation accident prevention
The Commander of Training and Doctrine Command (TRADOC)	Integrates aviation safety guidelines into aviation doctrine, leadership programs, and organizational designs Develops aviation safety lessons learned and countermeasures for accidents
The Commander Army Material Command	Elimination of hazards in aviation equipment, materiel systems, and technology. Informs users of the hazards associated with equipment designs, maintenance, and operation.
The Commander, US Army Aviation Center	Developing and maintaining the army aviation standardization program. Providing inspection teams for the army aviation standardization program



What are the responsibilities of key personnel in the Unit Aviation Safety Program?

Unit Commander

- Ensuring that safety is a principal element in all aviation operations.
- Applying risk-management procedures in each phase of the training-management cycle to identify hazardous conditions and correct shortcomings responsible for these conditions. Aircraft accidents are caused by below-standard performance of unit functions due to human factors, material failure, or inadequate precautions for environmental factors.

Unit Aviation Safety officer (ASO)

The primary duty of the unit aviation safety officer is to advise and assist the commander and staff on all safety matters, including:

- Developing safety policy for the unit.
- Developing safety goals, objectives, and priorities and integrating them into appropriate training guidance based upon identification of the most probable and severe types of accidents expected and the most likely reasons (hazards) for these accidents.
- Developing corrective actions/control options for command selection.
- Monitor the ability of each unit functional area (for example, battlefield operating systems) to protect the force against aviation accidents.
- Advise the commander when a below-standard status that affects safety is detected in any functional area

The Aviation Safety NCO

- Assists and advises and makes recommendations to the ASO on aviation accident prevention matters.
- Maintains liaison between the command sergeant major, first sergeants, and other enlisted personnel on all aviation safety matters.
- Observes aircraft support activities (POL, maintenance, operations, enlisted crewmember training).

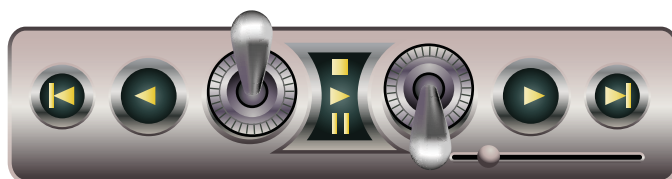
- Act as recorder for the Enlisted Aviation Safety Council (EASC) and maintain liaison between EASC and the command safety council.
- Post reference files on aviation safety literature for the ASO, keeping the ASO informed of noted changes and new material received, and ensure that all files are current and complete.
- Participate in unit safety surveys and inspections.

Flight Surgeon/APA

- Assists and advises the command on all aviation medicine matters, communicating aero-medical risk to the commander
- Participates in flight operations to monitor the interaction between crew members, aircraft, and flight environment.
- Serves as a member of the accident investigation boards.
- Reviews the medical portion of the accident mishap prevention and pre-accident plans for adequacy and sound medical practice.
- Monitors the survival and physiological training of aviation crewmembers.
- Serves as member of the unit safety council and participates in aviation safety meetings.

Individual Soldier

- Ultimately responsible for ensuring his or her own safety and for expeditiously advising the aviator that an unsafe act is occurring or is about to occur.
- Each individual has a moral responsibility to advise others about anyone who may knowingly or unknowingly, be committing or about to commit an unsafe act.



Safety Programs

Foreign Object Damage Prevention Program (FOD)

FOD is damage to or malfunction of an aircraft caused by an object that is alien to an area or system or is ingested by or lodged in a mechanism of an aircraft. Foreign object damage may cause material damage or it may cause a system or equipment to be unusable, unsafe, or less efficient.

Some examples of FOD are ingestion of loose hardware or grass by an engine, flight controls jammed by hardware or tools, and tires cut or propellers or tail rotors damaged by debris on the ramp or taxiway.

The objectives of an FOD prevention program are to find and correct potential hazards and to eliminate the causes of FOD.

Training, work-site design, discipline, motivation, and follow-up on FOD incidents are key factors of a sound program. All unit personnel will take an active role in FOD prevention.

An effective FOD prevention program can enhance combat readiness by saving material, manpower, and money. Therefore, FOD prevention must be an essential part of each unit's aviation accident-prevention program.

Operational Hazard Report Program (OHR)

An operational hazard is any condition, action, or set of circumstances that compromises the safety of Army aircraft, associated personnel, airfields, or equipment.

Operational hazards include inadequacies, deficiencies, or unsafe practices pertaining to:

- Air traffic control
- Airways and navigational aids
- near midair collisions between aircraft and other objects in the air and on the ground
- aircraft operations, maintenance, or inspection, and weather services

Any person (military or civilian) may submit an Operational Hazard Report. OHR will be submitted to an ASO or Army flight operations office, which will then forward the report to ASO or operations office exercising organizational control.

Commanders are responsible for ensuring that procedures are established to manage the OHR

functions. This includes emphasizing the importance of the OHR as a safety tool; Reporting and investigating reports promptly; and correcting hazards promptly.

Pre-Accident Planning Program

The development of detailed, written, pre-accident plans specifying duties, responsibilities, and immediate actions for personnel involved in accident notification procedures, search and rescue, accident investigation, and equipment recovery.

The unit operations officer develops and administers the pre-accident plan with the technical assistance of the unit ASO.

These plans will:

- Interface with airfield/installation and higher headquarters plans.
- Units/facilities on non-Army and non-DOD airfields will ensure plans are coordinated with appropriate local authorities to ensure applicable Army and DOD requirements are complied with.
- Focus on organized rescue of personnel, protection of property, preservation of the accident scene, and notification of appropriate personnel.
- Address both garrison and field/deployment operations.

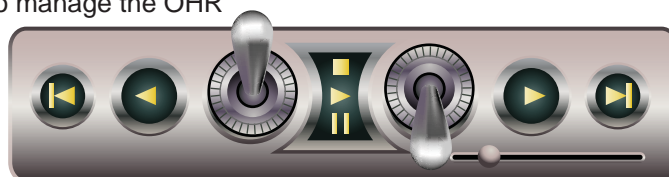
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The Flight Surgeon is responsible to monitor and conduct survival training for the unit IAW AR 40-3 and AR 95-1. Get involved and get some of this training on the unit training schedule. It is usually a lot of fun for everyone and may save a life some day!

Aviation life-support-systems (ALSS) program

Ensures aircrews are provided with adequate Aviation Life Saving Equipment (ALSE) as prescribed by AR 95-1.

Commanders will designate a qualified officer/NCO to manage the unit ALSS program.

Unit ASO/ASNCO will monitor, but should not manage, the ALSS program.



Safety of Flight (SOF) messages:

Emergency

- An emergency message immediately grounds a fleet of aircraft or a designated portion of a fleet of aircraft.
- This occurs when a hazardous condition exists that has the potential to cause a catastrophic accident resulting in injury or death of personnel, damage, or destruction of aircraft.



Note: Emergency messages are for grounding purposes only. They will always be followed by operational or technical messages.

Operational

- An operational message may ground aircraft for operational reasons, other than an emergency, to correct hazardous conditions pertaining to aircraft operations.
- This may include flight procedures, operating limitations, or operational policy.

Technical

- A technical message may be issued to effect grounding for material or maintenance conditions.
- This message can be an independent message or a follow-up to an emergency SOF message.
- Required corrective action must be completed within the time frame or frequency established by the initial message or published in subsequent SOF messages or publications.
- Technical messages may include:
 - Corrective action not involving a configuration change
 - Aircraft, component or repair parts modification to be accomplished by an urgent MWO [I dunno, WHAT?]
 - One time inspection requirements for aircraft, components, repair parts to be accomplished by an urgent TB
 - Replacement of safety related items that

require continuous monitoring

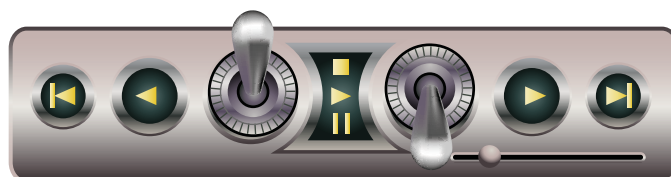
Action Messages

Informational Message

An informational message will provide status and information of a maintenance, technical, or general nature.

Operational Message

An operational message pertains to aircraft operation, flight procedures, limitations, or operational policy.



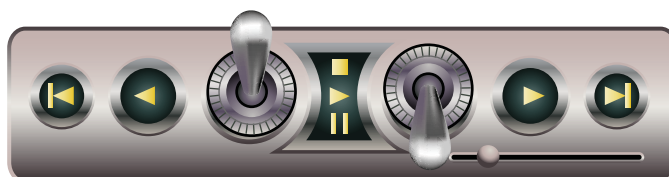
Accident Classification

Class A accident	<ul style="list-style-type: none"> An Army accident in which the resulting total cost of property damage is \$1,000,000 or more An Army aircraft or missile is destroyed, missing or abandoned An injury and/or occupational illness results in a fatality or permanent total disability
Class B accident	<ul style="list-style-type: none"> An Army accident in which the resulting total cost of property damage is \$200,000 or more, but less than \$1,000,000 An injury and/or occupational illness results in permanent partial disability Five or more personnel are hospitalized as inpatients as a result of a single occurrence
Class C accident	<ul style="list-style-type: none"> An Army accident in which the resulting total cost of property damage is \$10,000 or more, but less than \$200,000 A nonfatal injury that causes any loss of time from work beyond the day or shift on which it occurred A nonfatal occupational illness that causes loss of time from work (i.e. 1 work day)
Class D accident	<ul style="list-style-type: none"> An Army accident in which resulting total cost of property damage is \$2,000 or more but less than \$10,000
Class E accident	<ul style="list-style-type: none"> An Army accident in which the resulting damage cost and injury severity do not meet the criteria for a class A-D accident A class E aviation accident is recordable when the mission (either operational or maintenance) is interrupted or not completed. Examples: A recordable; engine quits during a maintenance flight. A non-recordable; chip light during flight.
Class F accident	<ul style="list-style-type: none"> Recordable incidents confined to aircraft turbine engine damage as a result of FOD, where that is the only damage.

Types of aviation accidents:

Flight Accidents. Those accidents in which the intent to fly exists and there is reportable damage to the aircraft itself.

Flight-related accidents. Those aircraft accidents in which there is intent to fly and no reportable damage to the aircraft itself, but the accident involves a fatality, injury to aircrew, ground crew, or passengers or other property damage.



What are flight line safety hazard markings?

Airfield Marking

- All runways will be marked with white reflective paint
- Taxi ways will be marked with yellow reflective tape
- Each may be outlined with black paint

Airfield and Heliport Hazard Marking

- Wheel chocks: Marked on all sides with yellow reflective paint

Vehicle Movement:

- Vehicle movement should be held to a minimum required for runway maintenance and inspection.
- All vehicles authorized to operate on the airfield will be painted yellow.
- Control tower light for vehicle movement.

Control tower lights for vehicle movement

- Steady green light - clear to cross
- Flashing green light - clear to proceed and watch for lights
- Steady red light - STOP Vehicle will not move.
- Flashing red light - Clear active runway immediately.
- Flashing white light - Return to starting point.
- Alternating red and green light - General warning exercise extreme caution.

What is safe personal conduct around aircraft?

APPROACH

Stay clear of the tail rotor area. Direct other crewmembers and passengers to avoid the tail rotor area by walking only around the nose of the aircraft.

Always approach the aircraft at a 45-degree angle from the nose and maintain eye-to-eye contact with the pilot on the controls.

Gain permission from the aircrew before approaching the aircraft. This can be accomplished via hand and arm signals during the day and with a flashlight or chemical light during night operations.

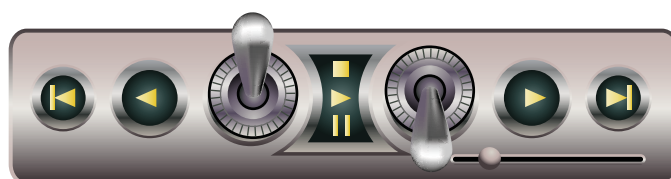
IN FLIGHT

In flight safety you must:

Stay Alert!

Assist the pilots by air space surveillance. Clearing the aircraft of obstacles or other aircraft.

If you see, hear, or smell something unusual, advise the pilots immediately.



US Army School of Aviation Medicine
301 Dustoff
Fort Rucker , AL 36362

334 • 255 • 7460
<http://usasam.amedd.army.mil>

